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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,312	08/24/2006	Marek Michalewicz	035777-0105	2668

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EXAMINER

SAYADIAN, HRAYR

ART UNIT	PAPER NUMBER
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2814

MAIL DATE	DELIVERY MODE
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06/18/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/554,312	Applicant(s) MICHALEWICZ ET AL.	
	Examiner HRAYR A. SAYADIAN	Art Unit 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,12-17,19,20,22-27 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,12-17,19,20,22-27 and 29-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

Objections to the Specification

1. The specification is objected to under 37 CFR § 1.75(d)(1) for failing to provide clear support or antecedent basis for terms and phrases in claims 16, 17, 24, and 25 .

The detailed description of an application must provide clear support or antecedent basis to terms and phrases in the claims in a manner making ascertainable, by reference to the description, the meaning of terms in the claims. See 37 CFR § 1.75(d)(1) and M.P.E.P. § 608.01(o).

The detailed description of this application however provides neither clear support nor clear antecedent basis for the following terms in the claims:

- a. "elongated electrical conductors comprise elongated doped regions located on the semiconductor substrates," as recited in claims 16 and 24.
- b. " elongated electrical conductors comprise metal rails located on the semiconductor substrates," as recited in claims 17 and 25.

Presenting claims 10, 16, and 17, and 20, 24, and 25 makes clear, by the Doctrine of Claim Differentiation, that the Reply intends now for claims 10 and 20 have a scope for the disclosed invention wherein the conductors include these terms, which lack written description as well as others species of conductors, such as carbon nano-tubes, for example.

The specification as originally filed however describes an invention wherein there is no disclosure of the species of conductors that might be used, let alone inventions wherein the conductors include doped semiconductors or metal rails.

Correction is required.

The amended detailed description must provide clear support or antecedent basis to the above terms in a manner making ascertainable, by reference to the description, the meaning of terms in the claims. See 37 CFR § 1.75(d)(1) and M.P.E.P. § 608.01(o).

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35 U.S.C. § 132(a) prohibits any "amendment [from] introduc[ing] new matter into the disclosure of the invention." Accordingly, new matter should not be introduced by either addition or deletion.

35 U.S.C. § 112 Rejections of the Claims

2. The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 16, 17, 24, and 25 are rejected under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement. The claim(s) contains subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that Applicant, at the time the application was filed, had possession of the claimed invention.

See above the objection to the specification with respect to claims 16, 17, 24, and 25.

Correction is required.

35 U.S.C. § 112, first paragraph, requires the originally filed specification to contain a written description of the claimed invention. And 35 U.S.C. § 132(a) prohibits any "amendment [from] introduc[ing] new matter into the disclosure of the invention." Accordingly, new matter should not be introduced by either addition or deletion.

35 U.S.C. § 103 Rejections of the Claims

4. The text of the appropriate paragraph(s) of 35 U.S.C. § 103, providing the legal basis for the obviousness rejection(s) in this Office Action, can be found in a previous Office Action.

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5. Claims 10, 12-15, 18, and 19, 20, 22, 23, 27, and 29-31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over WO 2000/14476 for a patent application by "Michalewicz-1" (U.S. Pat. No. 6,707,308 to "Michalewicz-2" is provided as a US equivalent, and is referred to in this Office Action and referred to as AAPA) in view of any of U.S. Pat. No. 5,265,470, 5,756,895, 6,534,839, 5,367,136, and 5,461,916 to "Kaiser," "Kubena," "Frazier," and "Buck," and "Fujii."

With respect to claims 10 and 20, AAPA, applicant's own work and admitted prior art, in addition to disclosing other recited features in claim 10, discloses using a thermoshrink wrap (see, for example, element 340 in FIG. 6) to maintain the positioning of two opposing substrates. AAPA discloses at least a pair of identified wrap 340 by way of the ones holding the opposite ends of the substrates, respectively.

The art however well recognizes the suitability of using a post as a hinge to maintain the positioning of two opposing substrates, the same as a function of the thermoshrink wrap 340 in AAPA. See, for example, the front pages of Kaiser, Kubena, Frazier, Buck, and Fujii.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention of this application to have modified the AAPA to elastically hold the top substrate and its conductors with respect to the lower substrate and its conductors by using a hinge, as taught by any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii." See, also M.P.E.P. § 2144.06 and patent law precedents cited therein.

With respect to claim 12, the hinges Kaiser, Kubena, Frazier, Buck, and Fujii disclose are resilient and have dimensions resulting in stiffness in the second direction being lower than the stiffness in a direction perpendicular to the second direction.

With respect to claims 13, 14, 22, 30, and 31, the recited "post " reads on the structure (post) in Kaiser, Kubena, Frazier, Buck, and Fujii. The claims recite the pillar and attendant web in the alternative and therefore do not narrow scope of the claims.

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With respect to claims 15, 23, the front page figures in at least Fujii and Kaiser disclose the first substrate having a larger area than the second substrate.

With respect to claims 19 and 29, the AAPA discloses using a gap that is lower than 5 nms.

With respect to claim 27, in AAPA, and Kaiser, Kubena, Frazier, Buck, and Fujii the second substrate has rotational motion that is perpendicular to the plane of the second substrate.

6. Claims 16 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over PGPUB US 2006/0285789 to an application by "Michalewicz-3" in view of U.S. Pat. No. 5,977,596 to "Rountree."

The features recited in claims 16 and 24 lack antecedent basis in the specification as originally filed. These features therefore lose their filing date and are accorded priority as of the filing of the amendment introducing them.

Michalewicz-3 therefore is prior art against claims 16 and 24.

Rountree is evidence that using doped regions in semiconductors as the conducting regions is a suitable practice. See, for example the front page Fig., column 3, lines 20-28, and claim 8. And according to well established patent law precedents (see, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have used doped elongated regions as the elongated conductors for their art recognized suitability in providing conducting regions.

7. Claims 17 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over PGPUB US 2006/0285789 to an application by "Michalewicz-3" in view of PGPUB US 2003/0036244 for a patent application by "Jones."

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The features recited in claims 17 and 25 lack antecedent basis in the specification as originally filed. These features therefore lose their filing date and are accorded priority as of the filing of the amendment introducing them.

Michalewicz-3 therefore is prior art against claims 17 and 25.

Jones is evidence that metal rails are appropriate elongated conductors. See, for example, the front page and paragraph [0048], describing the use of inter-digitated capacitors and their benefits. And according to well established patent law precedents (see, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have used metal rails as forming a part of the elongated conductors to increase the capacitive effect, which enhances the charge buildup in the conductive regions, which enhances the tunneling effect.

8. Claims 16 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AIPA "Michalewicz-1" ("Michalewicz-2"), in view of any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii," further in view of "Rountree."

Rountree is evidence that using doped regions in semiconductors as the conducting regions is a suitable practice. See, for example the front page Fig., column 3, lines 20-28, and claim 8. And according to well established patent law precedents (see, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have used doped elongated regions as the elongated conductors for their art recognized suitability in providing conducting regions.

9. Claims 17 and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over AIPA "Michalewicz-1" ("Michalewicz-2"), in view of any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii," further in view of "Jones."

Jones is evidence that metal rails are appropriate elongated conductors. See, for example, the front page and paragraph [0048], describing the use of inter-digitated

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capacitors and their benefits. And according to well established patent law precedents (see, for example, M.P.E.P. § 2144.07), therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have to have used metal rails as forming a part of the elongated conductors to increase the capacitive effect, which enhances the charge buildup in the conductive regions, which enhances the tunneling effect.

10. Claim 26 is rejected under 35 U.S.C. § 103(a) as being unpatentable over AAPA "Michalewicz-1" ("Michalewicz-2"), in view of any of "Kaiser," "Kubena," "Frazier," "Buck," and "Fujii," further in view of U.S. Pat. No. 6,137,206 to "Hill."

The combination of Fujii, Jones, and Kubena appears to fail to explicitly disclose using three more solid state hinges to mount the second substrate onto the first substrate.

The MEMs art however well recognize arranging two substrates in this manner. See, for example, Hill, the front page. To allow the rotary motion of the second substrate with respect to the first substrate, therefore, it would have been obvious at the time of the invention of this application to one of ordinary skill in the art to have used at least three more hinge structures.

Response to Applicant's Argument(s)

11. The arguments in the 4/8/2010 Reply have been fully considered. These arguments however are not found persuasive.

The arguments are moot in view of the rejections.

Specifically, the Reply argues that Fujii and Kubena are not combinable. And, even if they were, they fail to disclose the separation between the substrate surfaces now recited in the independent claims.

In response, Examiner notes that AAPA "Michalewicz-1" ("Michalewicz-2") discloses this distance between the surfaces of the substrates.

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The Reply also argues that a tip is a sharp surface and therefore cannot be parallel to the surface of another surface.

In response, Examiner notes that that claims fail to exclude a sharp tip being part of the surface, and that a tip being a sharp surface does not exclude it having a portion (even if infinitesimal) that would be parallel. And independent of the tip, at least the other portions of the surface having the tip are parallel to the opposing surface of the opposing substrate.

CONCLUSION

12. A shortened statutory period for reply to this Office Action is set to expire **THREE MONTHS** from the mailing date of this Office Action. Applicant is reminded of the extension of time policy as set forth in 37 CFR § 1.136(a).

Any inquiry concerning this communication or earlier communications from an Examiner should be directed to Examiner Hrayr A. Sayadian, at (571) 272-7779, on Monday through Friday, 7:30 am – 4:00 pm ET.

If attempts to reach Mr. Sayadian by telephone are unsuccessful, his supervisor, Supervisory Primary Examiner Wael Fahmy, can be reached at (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available only through Private PAIR.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. The Electronic Business Center (EBC) at (866) 217-9197 (toll-free) may answer questions on how to access the Private PAIR system.

/Hrayr A. Sayadian/

Patent Examiner, Art Unit 2814